UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,133	05/13/2005	Anthony S Wexler	UC03-049-2	3588

22835 7590 05/15/2009

PARK, VAUGHAN & FLEMING LLP
2820 FIFTH STREET
DAVIS, CA 95618-7759

EXAMINER	
GAKH, YELENA G	

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
05/15/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto-incoming@parklegal.com

Office Action Summary	Application No.	Applicant(s)	
	10/535,133	WEXLER, ANTHONY S	
	Examiner	Art Unit	
	Yelena G. Gakh, Ph.D.	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-14,16-19,21-24 and 26-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-14,16-19,21-24 and 26-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Amendment filed on 03/04/09 is acknowledged. Claims 5, 15, 20, 25 and 30 are cancelled. Claims 1-4, 6-14, 16-19, 21-24 and 26-29 are pending in the application and considered on merits.

Response to Amendment

2. The amendment filed 03/04/09 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: A, "wherein an electric field crosses the laminar gas flow so that the laminar gas flow and the electric field *are not parallel to each other*"; B, "*an electric-field applying mechanism configured to apply* an electric filed *to the ionized sample, wherein the electric filed is not parallel* to the laminar gas flow"; C, "*comprising an adjusting mechanism configured to adjust the laminar gas flow and the electric field to separate particle mobilities in the sample which is in a particle phase*".

Applicant is required to cancel the new matter in the reply to this Office Action.

3. In response to the amendment the examiner withdraws objection to claims 12-20 and ODP rejection, modifies rejection of the claims under 112, first and second paragraphs, and maintains rejection over the prior art.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the method comprising the step of comparing the data with data recorded using known samples, does not reasonably provide enablement for any other method. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. It would have been undue experimentation for a person of ordinary skill in the art,

to search for other ways of analyzing the output from the ion mobility spectrometry to determine a chemical composition of the sample, because the **mobility** of the analytes *per se* does not allow determining the **chemical nature** of unknown analytes, see e.g. Fuerstenau et al. (Int. J. Mass Spectrom., April 2002).

6. Claims 1-4, 6-14, 16-19, 21-24 and 26-29 are rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The examiner respectfully reminds the Applicants that according to MPEP §2163, in particular, "2163.02. Standard for Determining Compliance with Written Description Requirement:

> The courts have described the essential question to be addressed in a description requirement issue in a variety of ways. An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). Whenever the issue arises, the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. See, e.g., *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention was "ready for patenting" such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention. See, e.g., *Pfaff v. Wells*

> *Elecs., Inc.*, 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998); *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997); *Amgen, Inc. v. Chugai Pharmaceutical*, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991) (one must define a compound by "whatever characteristics sufficiently distinguish it").

Specifically, the specification does not disclose the following claim limitations: A, "an electric field crosses the laminar gas flow so that the laminar gas flow and the electric field *are not parallel to each other*"; B, "*an electric-field applying mechanism configured to apply* an electric filed *to the ionized sample, wherein the electric filed is not parallel* to the laminar gas flow"; C, "*an adjusting mechanism configured to adjust the laminar gas flow and the electric field to separate particle mobilities in the sample which is in a particle phase*".

Furthermore, the specification does not disclose "an analyzing mechanism configured to analyze he output to determine a chemical composition of the sample" recited in claim 11. The specification discloses that "the system analyzes the output of the electrometer array to determine the **mobility** of the analyte" (page 3, line 19). The **mobility** of the analytes *per se* does not allow determining the **chemical nature** of unknown analytes. Claim 11 recites an analyzing mechanism configured to analyze the output to determine a chemical composition of the sample. The specification does not support the language of the claim, as no such analyzing mechanism is disclosed in the specification.

Therefore, the Applicant failed to show "possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention".

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4, 6-14, 16-19, 21-24 and 26-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites that "the laminar gas flow and the electric field are not parallel to each other". To the examiner's understanding, the angle between the laminar gas flow and the electric field is essential for performing the method. A definition "the laminar gas flow and the electric

field are not parallel to each other" does not provide any indication, as to what might be this angle, which renders the claim unclear and indefinite.

Claims 3, 6, 13, 14, 16, 23, 24 and 26 recite the terms "desorbing" and "ablating" of the analyte; specifically "desorbing" and "ablating" "mechanism" or "means". According to on-line Merriem-Webster's dictionary: "to desorb" is "to remove (a sorbed substance) by the reverse of adsorption or absorption" and "to ablate" is "remove or destroy especially by cutting, abrading, or evaporating". A laser in matrix-assistant laser desorption ionization (MALDI) is used for *desorption* of the analyte from the matrix; the term "desorption" is used in the instant context in the meaning of *ablation*. Thus, the examiner does not see any difference between desorption and ablation of the analytes from the particles and considers these terms as synonyms. Laser is capable of desorbing, as well as ablating the analytes from the particles.

Claim 7 recites that reading the output involved resetting the electrometer array, accumulating charge on elements and "reading the charge". What is "reading the charge"? Does it mean "determining the charge"?

Claim 11 recites "an electric-field applying mechanism configured to apply an electric filed to the ionized sample, wherein the electric filed is not parallel to the laminar gas flow" and "an analyzing mechanism configured to analyze the output to determine a chemical composition of the sample". Claim 21 recites the same second expression. The examiner failed to find corresponding description of these mechanisms in the specification. The meaning of the terms is unclear.

Claims 8, 18 and 28 recite "a particle phase". It is not apparent, as to what phase this is. The examiner is aware of three phases for a material - solid, liquid, and gaseous. Which of these phases the "particle phase" belongs to? The examiner believes, that the terminology is unclear, indefinite and confusing, since it is well known, that particles can be solid, liquid, or gaseous (e.g. gas in a liquid), i.e. particles can exist in three different phases. From the term "particle phase" it is not apparent, as to what is the particle phase.

Claims 11 and 21 appear to recite the structural elements through their function, as can be seen from the recitation following the clause "wherein". However, it is not apparent from the claims the way they are written, as to which structural elements of the apparatus provide this function. The functional language of the claim does not give a clear and unambiguous

description of the structural elements of the apparatus, which renders the claims and all pending claims unclear and indefinite.

Claim 12 recites the limitation "a receiving mechanism", which is not supported by the specification, and the structure of which is unclear.

Claims 13 and 14 recite functional language for the apparatus claims. It is not clear, whether the functions are performed by specific structural elements of the apparatus; this renders the claims unclear and indefinite. The same is true for claims 17-20 and 27-30. The apparatus claims are supposed to recite structural elements. Therefore, if the Applicant wants to indicate e.g. that the apparatus comprises two separate electrometer arrays for detecting positive and negative ions, this should be indicated so in the claims.

Claim 17 recites the limitation "the reading mechanism", which is not supported by the specification. Furthermore, it is not apparent, as to how the "reading mechanism" can be configured to accumulate charge on elements. The examiner failed to find support for such configuration in the specification.

Claims 18 and 28 recite the limitation "an adjusting mechanism configured to adjust the laminar gas flow and the electric field to separate particle mobilities in the sample which is in a particle phase". The recitation is not supported by the specification and is unclear. What type of adjusting mechanism is meant here?

Claim 21 recites the limitations related to different means, which are not definitely disclosed it the specification, such as applying means for applying an electric field, or analyzing means for analyzing the output to determine a chemical composition of the sample.

In general, the language of the majority of the pending claims is not supported by the specification, is not disclosed in clear and definite terms, and thus renders the claims unclear and indefinite.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. **Claims 1-4, 7, 9-14, 17, 19, 21-24, 27 and 29** are rejected under 35 U.S.C. 102(a) as being anticipated by Fuerstenau et al. (Int. J. Mass Spectrom., April 2002) (Fuerstenau) as evidenced by any of the prior art cited in the review by Schmitt et al. (Joint Conference, March 2004) (PA Schmitt), e.g. Mora et al. (Trends in Anal. Chem., 1998) (Mora).

Fuerstenau discloses "Active pixel sensors for mass spectrometry" (Title):

"Active pixel sensors (APS) are micro-fabricated CMOS amplifier arrays that are rapidly replacing CCD devices in many electronic imaging applications. Unlike the pixels of a CCD device, the sensing elements of the APS will respond to locally situated electrostatic charge, owing to the amplifier present in each pixel. We have built two small test arrays with microscopic aluminum electrodes integrated onto standard APS readout circuitry for the purpose of detecting low-energy gas-phase ions in mass spectrometers and other analytical instruments. The devices exhibit a near-linear dynamic range greater than four orders of magnitude, and a noise level of less than 100 electrons at room temperature. Data are presented for the response of the APS detectors to small ions in a miniature magnetic sector mass spectrometer and in an atmospheric pressure jet of helium. Data for individual highly-charged electrospray droplets are presented as well. Anticipated improvements suggest that in the near future APS ion detectors will posses noise levels approaching 10 electrons and will have a useful dynamic range over six orders of magnitude." (Abstract).

Specifically Fuerstenau indicates:

"APS detectors should find use in **ion mobility instruments** as well, particularly those based on **differential ion mobility in which a spatial separation of the ions is created**. We have also been able to make this linear array detector respond to individual charged dust particles with a few thousand charges, although, the 2D array detector is better suited for this purpose." (Pages 108-109).

As evidenced by PA Schmitt:

"Differential Mobility Analysis (DMA) was originally developed to measure the mobility of charged aerosol particles. Recent extensions of the technology now permit the use of DMA to measure the mobility of molecular ions. [3,4,5,6,7] DMA employs a high speed flow of air contained in the annular region between two concentric cylinders (see Figure 2). *The inlet converges to accelerate the laminar air flow into the measurement cell.* Careful attention is paid to the details of the flow path to assure smoothness in order to prevent unwanted transition to turbulence. In recent tests, the DMA has operated with laminar flow at Reynolds number up to 100,000, an extraordinarily high value for non-turbulent flow. A photo of the experimental DMA flow cell at Yale University is shown in Figure 3. *High voltage (up to 19 kV) is applied between the cylinders generating* ***an electric field perpendicular to the streamlines of the high speed air flow.*** [*Claims 10, 20, 30*]. Cell polarity may be reversed to measure analyte ions of either charge. Analyte molecules may be ionized by conventional beta irradiation emitted from a radioisotope or by interaction with Electrospray Droplets that is discussed further below. Analyte ions are

> introduced into the DMA measurement cell on one side of the flow field. The electric field drives the ions across the streamlines while the air flow drags the ions downstream. These competing forces separate the ions in space. Ions with differing mobilities follow different trajectories across the cell: high mobility ions move directly across the air flow whereas ions with low mobility are dragged further downstream." (Page 3, the first two paragraphs of the Chapter "Differential Mobility Analysis") (see e.g. Mora, Fig. 2).

Thus, Fuerstenau, as evidenced by PA Schmitt (e.g. Mora), suggests a method for performing ion mobility spectrometry, specifically a well known method of Differential Mobility Analysis (DMA), which comprises "receiving a gaseous sample for analysis, ionizing the sample, injecting the ionized sample into a laminar gas flow, wherein an electric field crosses the laminar gas flow so that the laminar gas flow and the electric field combine to spatially separate ions of the sample based on ion mobility and so that the spatially separated ions contact different elements of an electrometer array, reading an output of the electrometer array; and analyzing the output to determine a chemical composition of the sample (*Claims 1, 11, 21*), wherein a plurality of particles comprising individual particles are converted into gas phase by ablating/desorption (*Claims 2-4, 12-14, 22-24*) and are spread along the APS arrays according to their mobility upon adjusting electric field and the laminar gas flow (*Claims 8, 18, 28*).

Regarding *Claims 7, 17 and 27* Fuerstenau teaches:

> "Most imaging devices operate in a sample and hold readout mode. Charge is integrated for a precise time duration and then sampled for a time that is on the order of microseconds or less. Typically, this operation is carried out in a rolling sequential fashion, i.e., one pixel is read out while the rest are integrating the signal. Large format arrays (512 × 512) can be read out at several frames per second." (Page 102, right column). Ground calibration of APS detectors is inherent to a detection mode.

Claim Rejections - 35 USC § 103

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. **Claims 6, 16 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuerstenau as evidenced by PA Schmitt in view of Koomen et al. (Anal. Bioanl. Chem., June 2002) (Koomen).

Fuerstenau as evidenced by PA Schmitt does not specifically disclose tandem ion mobility spectrometry/spectrometer for detecting analytes obtained by ablation and desorption.

Koomen teaches "Oligonucleotide analysis with MALDI–ion-mobility–TOFMS" (Title), which comprises using laser desorption from matrix for obtaining desorbed/ablated analytes to be introduced into the ion mobility spectrometer.

It would have been obvious for a person of ordinary skill in the art to use tandem ion mobility spectrometer using laser desorption/ablation technique as taught by Koomen in order to obtain the most complete analysis of the compounds, which may be not fully released into the first ion mobility spectrometer.

13. **Claims 8, 18 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuerstenau as evidenced by PA Schmitt.

While Fuerstenau as evidenced by PA Schmitt does not specifically disclose separate electrometer array for positive and negative ions, it would have been a clear modification of Fuerstenau's method and apparatus, since Schmitt indicates that "[c]ell polarity may be reversed to measure analyte ions of either charge" (page 3). Thus, it would have been obvious for a person of ordinary skill in the art to measure both types of ions sequentially at two different sets of electrometer APS arrays.

Response to Arguments

14. Applicant's arguments filed 03/04/09 have been fully considered but they are not persuasive.

Double patenting rejection is overcome with the amendment, which, however, is not supported by the specification.

Objection to the claims is overcome with the amendment; however, the amendment to claim 18 raised an issue of new matter.

Regarding rejection of claims 1-4, 6-14, 16-19, 21-24 and 26-29 under 112, first paragraph, as not complying with written description, claim 11 recites an analyzing mechanism configured to analyze the output to determine a chemical composition of the sample. The specification does not support the language of the claim, as no such analyzing mechanism is disclosed in the specification.

Regarding rejection of claims 1-4, 6-14, 16-19, 21-24 and 26-29 under 112, second paragraph, the examiner cannot agree with the Applicant's arguments. Regarding the terms

desorption and ablation, on-line Merriem-Webster's dictionary provides the following explanation: "to desorb" is "to remove (a sorbed substance) by the reverse of adsorption or absorption" and "to ablate" is "remove or destroy especially by cutting, abrading, or evaporating". Since no cutting or abrading can be assumed in the instant method, the only remaining definition for ablation is evaporation, which is not different from desorption. Furthermore, while the specification discloses ablation with a laser, the laser in matrix-assistant laser desorption ionization (MALDI) is used for *desorption* of the analyte from the matrix. Thus, the examiner does not see any difference between desorption and ablation of the analytes from the particles and considers these terms as synonyms. Laser is capable of desorbing, as well as ablating the analytes from the particles. Volatile and non-volatile components will be desorbed by the laser. If the Applicant meant to recite first desorbing volatile components using a thermal non-laser source, then they will discern this from desorption using the laser.

Regarding the term "particle phase", the Applicant referred to US 5,427,899. However, the definition used in US 5,427,899 is totally different from what is recited by the Applicant. In fact US 5,427,899 discloses the following: "[a] two-phase acidic aqueous composition for use as a neutralization layer is generally comprised of a water soluble aqueous phase and a water insoluble particle phase (Abstract), i.e. it discloses a two-phase system comprising a water-soluble and water-insoluble phases. It has nothing to do with the "particle phase" of the instant application. The term "particle phase" is unclear and indefinite, since it is not apparent, as to whether the particles are solid, gaseous, or liquid. The matter cannot exist in any other phase, besides solid, liquid or gas (if the Applicant did not mean plasma, which may be considered a forth phase).

Regarding the term "electric-field applying mechanism", the examiner did not find this definition in the specification and is not sure, as to what this mechanism might be.

The "receiving mechanism" "configured to reset, accumulate, and read the electrometer array" is not disclosed in the specification in these terms and it is not clear, what it might be. The same is true for the term "adjusting mechanism".

The Applicant did not indicate, where these terms are defined in the specification.

Regarding rejection of the pending claims over the prior art, the examiner cannot agree with the Applicant's arguments in two aspects. First, Schmitt's reference is a review, which

described the state of the prior art, and the examiner specifically referred to the PRIOR ART disclosed by Schmitt, with references 3-7 disclosing Differential Mobility Analysis (DMA) dated between 1998 and 2002. Second, as indicated by Schmitt, "[o]riginally developed for sizing (of) aerosol particles, Differential Mobility Analysis or DMA has been extended recently to analysis of molecular ions. **DMA uses an electric field *orthogonal* to the streamlines of a high speed laminar flow of sheath air to separate ions in space according to their mobility**" (pages 1, 2, Introduction). The Applicant refers to Figure 1 of his disclosure as depicting "DMA" with parallel flow of the gas and direction of the electric current. However, what is depicted in Figure 1 is "a conventional ion mobility spectrometer", which is different from **differential** mobility spectrometer adapted for **analysis**, as disclosed by the prior art described by Schmitt.

Therefore, Differential Mobility Analysis necessitates electric filed being orthogonal to the streamlines of the high speed laminar flow of sheath air, and using Schmitt's reference disclosing the prior art as evidence is proper.

As to the tandem spectrometry, two ion mobility spectrometers, which are capable of analysis of components of different nature is an obvious modification of the system, especially when the price of the system is not an issue.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Y. Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yelena G. Gakh/
Primary Examiner, Art Unit 1797

5/10/2009